

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

--	--	--	--	--	--	--	--	--	--

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016 / 2017

**PCO0165 – INTRODUCTION TO COMPUTER
ARCHITECTURE AND OPERATING SYSTEM**
(Foundation in Information Technology)

6 MARCH 2017
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 pages (excluding the cover page) with 5 questions only.
2. Answer **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

Instructions: Answer **ALL** questions. Write your answers in the Answer Booklet.

QUESTION 1 [10 Marks]

- a. Explain briefly the system interconnection as one of the main structural components of a computer.
(2 marks)
- b. List **FOUR** (4) computers developed in the first generations (1944 - 1958).
(2 marks)
- c. Discuss the difference between CISC and RISC processors.
(4 marks)
- d. State **TWO** (2) features of the Intel Pentium IV.
(2 marks)

QUESTION 2 [10 Marks]

- a. Convert the following binary numbers to decimal equivalents. Show computation steps.
 - i. 10001100.111_2
 - ii. 10110100.010_2(3 marks)
- b. Convert the following hexadecimal notations to their binary equivalents. Show computation steps.
 - i. $45C.BA_{16}$
 - ii. $7EF.66_{16}$(3 marks)
- c. Convert the following octal notations to decimal equivalents. Show computation steps.
 - i. 276_8
 - ii. 0.65_8(4 marks)

QUESTION 3 [10 Marks]

- a. Calculate the addition arithmetic operation of the following unsigned binary numbers. Show computation steps.
 - i. $00110110 + 01110110$
 - ii. $11101110 + 10111001$(2 marks)

Continued...

- b. Calculate the subtraction arithmetic operation of the following unsigned binary numbers. Show computation steps.
- $11101011 - 00110110$
 - $11110111 - 10111100$
- (3 marks)
- c. Solve the following addition operations using the two's complement addition in 5-bit for signed integer. Show computation steps.
- $6 + (-2)$
 - $(-5) + (8)$
- (3 marks)
- d. Solve the subtraction operation $(-8) - (-4)$ using the two's complement subtraction in 4-bit for signed integer. Show computation steps.
- (2 marks)

QUESTION 4 [10 Marks]

- a. Explain the meaning of the following assembly language instructions code.
- LXI H, 2020H
 - STA 6012H
 - MVI M, 55H
 - INX H
- (4 marks)
- b. Write an assembly program based on the following steps:
- Let say, the memory locations contain the following operands:
 $(5000H) = 1AH$
 $(5001H) = 2AH$
 $(5002H) = 3AH$
 - Rearrange the contents of memory to the new locations as showed in the result.
Result:
 $(5000H) = 3AH$
 $(5001H) = 1AH$
 $(5002H) = 2AH$
- (6 marks)

QUESTION 5 [10 Marks]

- a. In the third generation of operating system, the multiprogramming system was introduced. Explain briefly the multiprogramming concept.
- (2 marks)
- b. User interface (UI) is one of the most critical factors of designing an operating system because a user interface (UI) brings structure to the interaction between a user and the computer. List and explain briefly the **TWO (2)** common types of user interface (UI) found in the operating system.
- (2 marks)

Continued...

- c. Describe the function of task manager tool in Windows operating system.
(2 marks)
- d. File protection is accomplished by controlling the type of file access. Access is allowed or rejected determined by a number of factors such as the type of access requested. Every file or directory has information on the type of users and accesses that they are able to do on a directory or file. Describe the following access list on a UNIX operating system "*drwxcr-xrw-*".
(4 marks)